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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/905,654	07/11/2001	Gary B. Josephson	23-59123	2675

7590 03/24/2005

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EXAMINER

JOHNSON, EDWARD M

ART UNIT	PAPER NUMBER
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1754

DATE MAILED: 03/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/905,654

Applicant(s)

JOSEPHSON ET AL.

Examiner

Edward M. Johnson

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1754

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 25 October 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-62,80-92 and 96-101 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3-25,27-32,34,35,37-40,42,43,45-62,80-92 and 96-101 is/are rejected.
- 7) ☒ Claim(s) 2,26,33,36,41 and 44 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

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**DETAILED ACTION**

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1, 3-10, 15, 17-25, 27-29, and 96-101 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wofford et al. US 5,750,823 in view Duncan et al.

Regarding claims 1, 9, 22, 24-25, and 88, Wofford '823 discloses a process for destruction of halohydrocarbons comprising mixing with a reducing reaction gas (see column 3, lines 15-18) producing a non-thermal (see abstract and paragraph bridging columns 1-2) to reduce the halohydrocarbon and produce hydrogen halide (see column 2, lines 10-15).

Wofford fails to disclose forming the plasma in the presence of a liquid.

Duncan '842 discloses forming the plasma in the presence of a scrubbing solution (see abstract and paragraph 0017).

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It is considered that it would have been obvious to one of ordinary skill in the art at the time the invention as made to form the plasma in the presence of a solution as disclosed in Duncan, in the gas treatment process of Wofford because Duncan discloses the solution plasma formation in a process for treatment of a gas stream (title, abstract) and adjusting to attain desired oxidation and scrubbing results (paragraph 0017, lines 8-10).

Regarding claims 3, 7, 19-20, 27, and 29, Wofford '823 discloses ambient temperature (see column 2, line 1 and instant specification).

Regarding claims 4, 6, 8, 10, 15, 18, 21, 23, and 89-90, Wofford '823 discloses water, hydrogen fluoride and scrubbing (see column 3, lines 10-15 and column 4, lines 25-29).

Regarding claims 5, 17, and 28, Wofford '823 discloses hydrogen and ammonia (see column 3, lines 15-18).

Regarding claims 11-12, Wofford '823 fails to disclose the same and opposite directions of flow. It is considered that it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the same or opposite directions of flow in the method of Wofford because Wofford discloses mixing the gases (abstract), which would obviously, to

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one of ordinary skill, suggest flows in at least substantially the same or opposite directions, especially during turbulence.

Regarding claims 96 and 98, Duncan '842 discloses forming the plasma in the presence of a scrubbing solution (see abstract and paragraph 0017).

Regarding claim 97, Duncan discloses a DBD or silent discharge plasma (see paragraph 0017).

3. Claims 13-14, 16, 30-32, 34-35, 37-40, 42-43, 45-62, and 80-92 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wofford '823 in view of Duncan '842, as applied to claims above, and further in view of Arno et al. US 6,423,284.

Regarding claims 30, 38, 49-50, 57, 60, 88, and 91, Wofford '823 discloses a process for destruction of halohydrocarbons comprising mixing with a reducing reaction gas (see column 3, lines 15-18) producing a non-thermal plasma in the presence of a liquid (see abstract and paragraph bridging columns 1-2) to reduce the halohydrocarbon and produce hydrogen halide (see column 2, lines 10-15).

Wofford fails to specifically disclose a film, fluorine, and electrodes.

Arno '284 discloses fluorine (title), film (see column 6, lines 58-60), and electrodes (see column 7, line 20).

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It is considered that it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the fluorine, film, and electrodes of Arno with the halogen hydrocarbon abatement process of Wofford because Arno discloses his fluorine, film, and electrodes in a fluorine abatement process using steam in oxidation treatment of semiconductor effluent gases (title) to reduce corrosion (see column 3, lines 36-37), and Wofford discloses the advantageous abatement of waste streams from semiconductor manufacturing including fluorinated compounds (see column 1, lines 17-39).

Regarding claims 31-32, 39-40, 52-53, and 55, Wofford '823 discloses air (see column 2, lines 5-10 and 34-37) and a film (see column 6, lines 58-60).

Regarding claims , Wofford '823 discloses ambient temperature (see column 2, line 1 and instant specification).

Regarding claims 37, 45-48, 51, 54, 56, 59, 62, 84-87, 89-90, Wofford '823 discloses water, hydrogen fluoride and scrubbing (see column 3, lines 10-15 and column 4, lines 25-29).

Regarding claims 34-35, 42-43, Wofford '823 discloses hydrogen and ammonia (see column 3, lines 15-18).

Regarding claims 13-14, 16, 52-53, and 58 Arno '284 discloses a film (see column 6, lines 58-60).

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Regarding claims 58, 61, and 92 Wofford '823 discloses a non-thermal plasma (paragraph bridging columns 1-2).

Regarding claims 80-83, Arno '284 discloses reaction with hydroxides (see list of other publications), which would obviously, to one of ordinary skill, suggest at least alkali metal hydroxides.

***Allowable Subject Matter***

4. Claims 2, 26, 33, 36, 41, 44, objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

5. The following is a statement of reasons for the indication of allowable subject matter: It would not have been obvious to one of ordinary skill in the art at the time the invention was made to use 0.000001-25% halogen or fluorine gas in the process of the instant claims 2, 26, 33, and 41; nor a ratio of hydrogen to fluorine of 0.5:1 to 4:1 in the process of the instant claims 36 and 44.

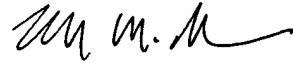
***Conclusion***

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edward M. Johnson whose telephone number is 571-272-1352. The examiner can normally be reached on M-F 9:30-6:00.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley S. Silverman can be reached on 571-272-1358. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 571-272-0987.



Edward M. Johnson  
Examiner  
Art Unit 1754

EMJ